REMARKS

This application has been reviewed in light of the Office Action dated June 10, 2004. Claims 63-73, newly added, are presented for examination, of which Claims 63, 66, 68, and 71 are in independent form. Claims 1-62 have been cancelled, without prejudice or disclaimer of subject matter, and will not be mentioned further. Favorable reconsideration is requested.

As an initial matter, Applicants note that the Examiner has made of record the information cited in the Information disclosure Statements dated September 29, 2000, and December 29, 2003. Two other Information Disclosure Statements have also been filed in this application, however: one, dated May 22, 2003, and a fourth on dated June 16, 2004 (that is, shortly after the mailing of the outstanding Office Action). accordingly, the Examiner is respectfully requested to return, with the Examiner's next paper, initialed copies of the forms PTO-1449 filed respectively with the Information Disclosure Statements of May 22, 2003, and June 16, 2004.

In the outstanding Office Action, U.S. Patents 6,039,430 (Helterline et al.) and 5,621,539 (Brown) were applied against the claims then pending, and U.S. Patent 6,644,544 B1 (Spurr et al.) was applied against a number of those claims. While not conceding the propriety of the rejections entered against those claims, Applicants strongly believe, for the following reasons, that the claims now pending are clearly allowable over those two patents (and the other art of record).

In addition to the well-known four-color printing, six-color printing has also become established, with the aim of achieving ever higher image quality with ink jet printing. As

is described in the present application, six-color printing uses, in addition to the usual three primary colors and black, lower-density inks of two of the three primary colors used. This permits the very high quality printing even in highlight areas, without the graininess that can affect such areas when older technology is used.

As an inkjet head is used over time, however, the quantities of ink ejected by a given nozzle upon actuation can vary, and such departures from the nominal ejection amount can seriously interfere with the achievement of the desired image quality. Conventional approaches to dealing with this problem include printing test images, scanning them in and analyzing the result, to determine corrections that need to be made, or having a user adjust settings based on observation of a printed image, in an effort to restore the desired performance. These approaches, it will be appreciated, are time-consuming, and subject to inaccuracy themselves.

The respective aspects of the present invention set out in the various independent claims relate to a printing system having an external apparatus for generating printing data corresponding to an image to be printed and a printing apparatus for performing printing by discharging ink from a printhead to be attached.

For example, independent Claim 63 is directed to a printing system having an external apparatus for generating printing data corresponding to an image to be printed and a printing apparatus for performing printing by discharging ink from a printhead to be attached, in which the printing is performed with the printing apparatus on the basis of the printing data to be output from the external apparatus. According to Claim 63, the printing apparatus comprises output means for outputting discharge amount information of ink discharge amount of the printhead and identification information unique to the printhead, which are stored in storage

means mounted on the printhead, to the external apparatus according to a request from the external apparatus. The external apparatus comprises image processing means for processing the printing data, input means for inputting the discharge amount information and the identification information output from the printing apparatus, and setting means for setting a processing parameter for processing by the image processing means on the basis of the discharge amount information input by the input means. Also provided in the external apparatus portion of the system are management means for managing the processing parameter set by the setting means on the basis of the discharge amount information for the printhead, and the identification information for the printhead in correspondence with each other. According to Claim 63, when the identification information input by the input means is managed by the management means, the setting means performs a process using the image processing means, employing the processing parameter corresponding to the identification information. Also, when the input identification information is not managed by the management means, the setting means sets the processing parameter on the basis of the discharge amount information output from the printing apparatus and performs a process using the image processing means, employing the set processing parameter.

Among other important features of this system are:

a) Storage of information about ink discharge amount of the printhead and identification unique to the printhead, in storage means mounted on the printhead.

b) A processing parameter of image processing means of the external apparatus, which is set on the basis of the discharge amount

information, is managed in correspondence with the identification information for the printhead, and vice versa.

c) When the identification information is managed in the external apparatus, the processing parameter corresponding to the identification information is used by the image processing means, while when the identification information is not managed in the external apparatus, a processing parameter is newly set on the basis of the discharge amount information output from the printing apparatus and is used by the image processing means.

By virtue of the features recited in Claim 63, when printing data are generated for a printing apparatus to which is attached a printhead corresponding to identification information managed in an external apparatus (such as a host computer), the external apparatus can utilize a processing parameter, which have been already managed corresponding to the identification information, to generate the printing data using the processing parameter without newly setting a processing parameter. As a result, the processing load on the external apparatus can be decreased.

On the other hand, when printing data are generated for a printing apparatus having an attached printhead corresponding to identification information not managed in an external apparatus, the external apparatus sets a processing parameter based on the discharge amount information acquired from the printhead and performs a process for the printing data using the set processing parameter. In this instance, therefore, suitable processing corresponding to the characteristics of the printhead can be performed.

Helterline relates to the storage and retrieval of information on a replaceable printing component. A memory 38 (see Figs. 2A and 3) is mounted on a printhead 16 and ink container 18, and a controller 26 reads information stored in the memory 38. The Office Action notes that the memory 38 stores an actual count of ink drops emitted from the printhead 16, a date code associated with the ink container 18 (in this instance, the memory 38 in question is not on the printhead proper but on the ink container 18 (col. 5, lines 27-32; see Fig. 2B), or the like.

Even assuming that *Helterline* is deemed to show all that it is cited for, however, nothing has been found in that patent that would even hint at storing discharge amount information and identification information in a storage unit mounted on a printhead, and storing in advance a processing parameter set based on the discharge amount information in correspondence with the identification information for the printhead, in an external apparatus (e.g., a host computer). Moreover, Applicants submit that nothing in *Helterline* would not teach or suggest a host computer storing in advance a processing parameter for each of variety of a printhead capable of being attached to the printing apparatus in correspondence with identification information of the respective printhead, as recited in Claim 63.

Furthermore, *Helterline* does not appear to consider a case in which a processing parameter corresponding to identification information of a printhead is *not* managed in the host computer. Nothing has been found in *Helterline* that would even hint at performing the above process, recited in Claim 63, which utilizes a previously managed processing parameter or a newly set processing parameter according to whether or not a processing parameter corresponding to identification information of the printhead is being managed in the host computer.

For these reasons, Claim 63 is believed to be clearly allowable over *Helterline*, taken alone.

Brown relates to an apparatus that has a touch screen 105 as input means. *Brown* does not, however, supply what is missing from *Helterline* as prior art against Claim 63, and thus, even if combined as proposed in the Office Action (and even assuming such combination would be a permissible one), *Helterline* and *Brown* would not meet the terms of Claim 63.

Independent Claim 66 is directed to the external apparatus of the system of Claim 63, and has the features recited for the external apparatus in Claim 63. Independent Claims 68 and 71 are method claims corresponding to Claims 63 and 66, respectively. Claims 66, 68 and 71 are deemed to be allowable over any permissible combination of *Helterline* and *Brown* for at least the reasons presented above in connection with Claim 63.

A review of the other art of record, including *Spurr*, has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

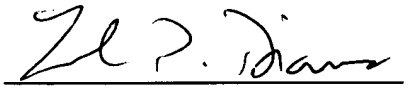
The other claims in this application depend from one or another of the independent claims discussed above and, therefore, are submitted to be patentable for at least the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, individual consideration of the patentability of each claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully

request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,



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